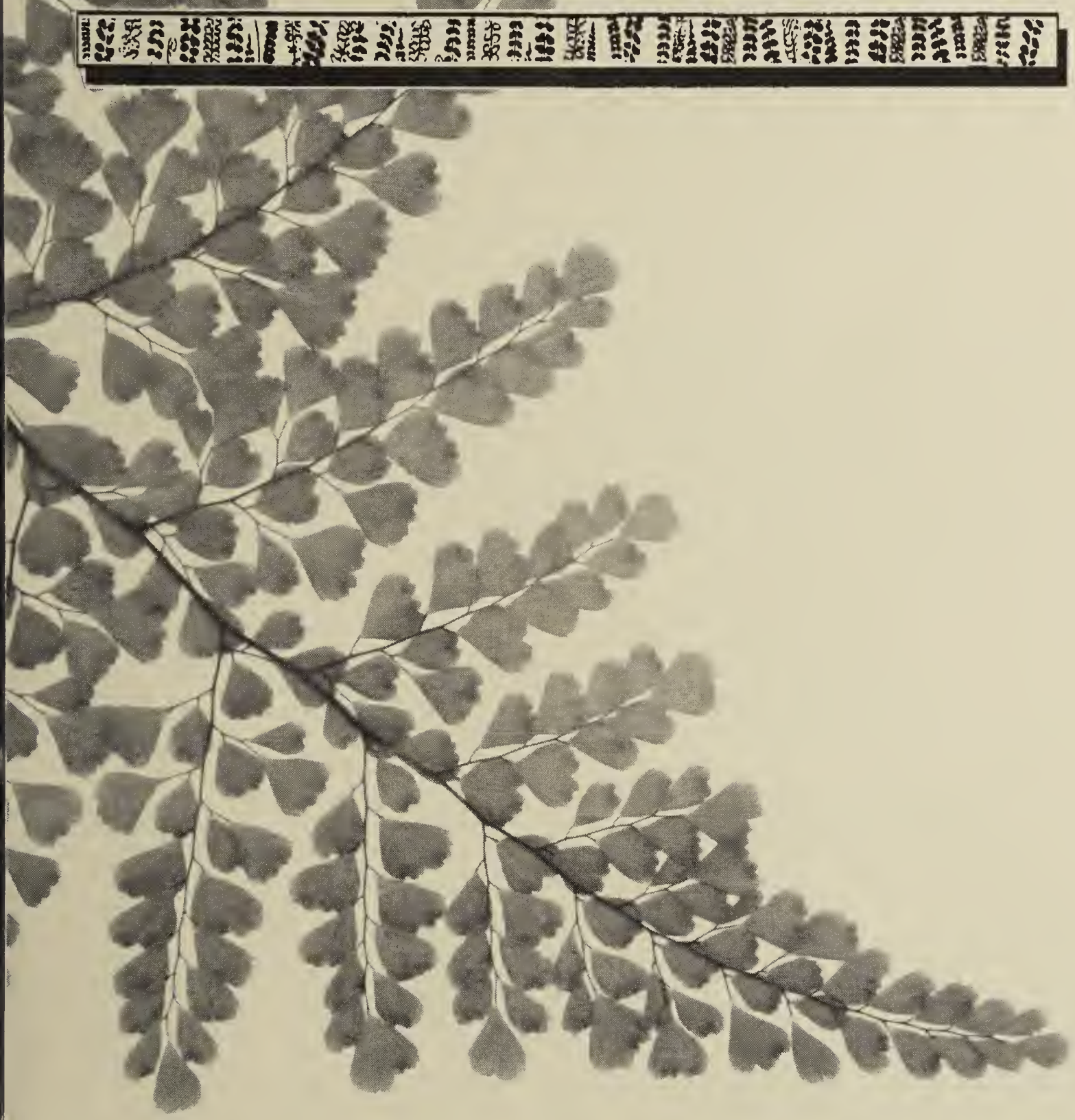
Hardy Fern Foundation Quarterly



THE HARDY FERN FOUNDATION

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Web site

www.hardyferns.org

The Hardy Fern Foundation was founded in 1989 to establish a comprehensive collection of the world's hardy ferns for display, testing, evaluation, public education and introduction to the gardening and horticultural community. Many rare and unusual species, hybrids and varieties are being propagated from spores and tested in selected environments for their different degrees of hardiness and ornamental garden value.

The primary fern display and test garden is located at, and in conjunction with, The Rhododendron Species Botanical Garden at the Weyerhaeuser Corporate Headquarters, in Federal Way, Washington.

Satellite fern gardens are at the Stephen Austin Arboretum, Nacogdoches, Texas, Birmingham Botanical Gardens, Birmingham, Alabama, California State University at Sacramento, Sacramento, California, Dallas Arboretum, Dallas, Texas, Denver Botanic Gardens. Denver, Colorado, Georgeson Botanical Garden, University of Alaska, Fairbanks, Alaska, Harry P. Leu Garden, Orlando, Florida, Coastal Maine Botanical Garden, Wiscasset, Maine, Inniswood Metro Gardens, Columbus, Ohio, New York Botanical Garden, Bronx, New York, and Strybing Arboretum, San Francisco, California.

The fern display gardens are at Lakewold, Tacoma, Washington, Les Jardins de Metis, Quebec, Canada, University of Northern Colorado, Greeley, Colorado, and Whitehall Historic Home and Garden, Louisville, KY.

Hardy Fern Foundation members participate in a spore exchange, receive a quarterly newsletter and have first access to ferns as they are ready for distribution.

Cover Design by Willanna Bradner.

THE HARDY FERN FOUNDATION

QUARTERLY

Volume 10 • No. 2 • Editor Sue Olsen

The Spore Exchange Needs You

Please continue to send spores to:

Jocelyn Horder
16813 Lemolo Shore Drive N.E.
Poulsbo, WA 98370

President's Message

John Putnam

Early In February the Hardy Fern Foundation took part In the Northwest Garden Show at the Seattle Convention Center. This Is a good opportunity to talk to Interested gardeners about ferns and to distribute the flyer regarding the Fern Festival and other material concerning ferns and the Hardy Fern Foundation.

The HFF had a booth, as It has had the last few years, adjacent to that of the Rhododendron Species Botanical Garden and the joint display was an Interesting and beautiful mixture of rhododendrons and ferns and their related visuals. Some of the attention-getters at the HFF end of the display were three large tubs of *Adiantum venustum*, the Himalayan Maidenhair Fern, and a *Polypodium scouleri*, a standout among the group loaned by Sylvia Duryee. Also In our area were *Rhododendron linearifolium* with Its narrow pointed leaves and Its spidery lavender flowers with petals shaped to match, and a *"R. spinuliferum* In full bloom, both eye-catchers.

Participation In the Garden Show requires a lot of work selecting the plants, potting them at the right time so they will be at their best during the show, trucking them to the convention center, carting them to the sixth floor, arranging an attractive display with due care that there is no water or soil on the floor, manning the booths, taking the display down and carting It all back to the RSF Garden. Our thanks to all those who took part and especially to Michelle Bundy who organized it for us and to the staff of the RSF Garden who did all the hauling and arranging.

Two board members have recently informed the board that they would be stepping down this spring after their terms of service. They are Willanna Bradner and Herman Entz. Both will be sorely missed.

This year the hand-outs included a beautiful new brochure designed and illustrated with fern fronds by Willanna. This brochure briefly introduces the HFF and lists the public gardens in the Puget Sound area where ferns are displayed as well as the satellite gardens and their locations. The brochure can be distributed by any group that informs people regarding garden viewing opportunities. Willanna is also working with Sue Mandeville of Springfield, OR to enhance our web-page with photos of ferns. The web-page for the HFF is at http://www.hardyferns.org. Check it out.

Herman seldom missed a work party whether it was trimming ferns at a display garden, lugging plants to the garden show, shipping plants or the generous use of his truck, there was always a pair of hands you could count on. Actually there were two pairs, his wife, Sue, pitched in too. But Herman's lasting contributions were the organization and computerization of the membership rolls; he also fielded e-mail questions from the members. In addition he worked with Mary Ellen Tonsing in maintaining liaison with the satellite and display gardens. When he received their reports he organized them into a print-ready form for the Quarterly.

These are two talented and generous people. A very grateful board wishes them Godspeed in their next pursuits and we will welcome them back at any time.

Last fall the RSF requested help from the HFF for financing the renovation of a section of the RSF garden. The original soil amendment, sawdust, did not respond as intended in all cases and resulted in being more of a problem than a help. Steve Hootman, Co-director of the Rhododendron Species Botanical Garden, met with the HFF board and described the problem and what the RSF staff planned as a solution. The board voted to take part in the cost to the extent of $9,000, to be paid in three annual payments. In February we received a letter from Honoré Hacanson of the RSF board thanking us for the assistance and explaining the project further. Following is a quote from that letter:

"The area is nearly the lowest spot on the 24 acres, and is too wet and mucky to sustain the rhododendrons which are currently in the area. As Steve explained to your group, we need to remove the current planting, add soil with considerably more sand, raise the beds and then replant. Steve's plan is to create a woodland garden using the larger leafed rhododendron species to give a feeling of being in the wild hills of China. No other garden has the space or the collection of these outstanding specimens to accomplish this goal. It will be a unique display. Using hardy ferns to compliment the rhododendrons is in the plan and will be a great addition to the woodland look".

These are exciting plans and will take several years to accomplish. As the RSF garden is the primary display garden from the HFF the board enthusiastically endorsed them. We will keep you posted.

The HFF has a new telephone number, (206) 870-5363, which, if not answered directly, will reach an answering machine. This in turn will be monitored and the call redirected to the person who could respond. Somewhat slow and primitive perhaps, but we will try it for awhile and see how it works as a first step toward better communications.

WELCOME New Members

Dorothy Linde
Margo Banner
Glenn Goodrich
Frank Thomas
Marvin Nutt
Sally Brewer
John T. Manion
Catherine Kaufell
VanDusen Botanical Garden
Huntsville Botanical Garden
(Huntsville Fern Society)
Kathy Crane
Tom Keepin

Memorials:

In Memory of Irving Knobloch and W. Herb Wagner:

Joan and Milton Gottlieb
Sue and Harry Olsen

New Fern Display Garden at the Bainbridge Public Library, Bainbridge Island, WA

John van den Meerendonk
Bainbridge Island, WA

A new Fern Display and Study Garden located on the grounds of the Bainbridge Island Public Library was installed in 1999. This garden is sponsored and in part, fundedb y the Hardy Fern Foundation and some of its members.

Original thoughts for the possibility of a Fern Display Garden began in 1997. At that time the Bainbridge Library had just completed a major expansion which had extensively changed the surrounding grounds due to the building expansion, tripling of the parking area, and changing the pedestrian access to and around the building.

As a gift to the community, the Bainbridge Island Japanese American Community donated the design and installation of the Haiku Garden in 1997. The Haiku Garden is located on the west side or front side of the library. This exquisitely designed and constructed garden is the heart and soul of the library grounds. Its installation was an all community volunteer effort which was in itself a wonderful experience and example of how a community can come together and create a beautiful space for the benefit of the entire community.

The library grounds on the north and south and southwest side of the building, flanking the building itself, the main entrance, and surrounding the parking areas are landscaped with an incredible array of plant material that provide year around interest and beauty. This ever changing and wonderful landscape is due to the efforts of the library garden volunteers who are led by renown Bainbridge garden writer, lecturer and resident, Ann Lovejoy. The library garden volunteers are truly an invaluable asset to the community for their undaunted efforts in not only creating a beautiful landscape, but in maintaining the entire library grounds which include the large and extensive Fern Display and Study Garden.

In the fall of 1998, as I was walking with my son, Ryan, to the Children's Library entrance located on lower east side of the library building, I noticed library garden volunteers clearing brush and blackberries on the east side of the library grounds. I inquired about what they were up to and they said that, at the request of the library staff, the clearing was to discourage high school students from "hanging out and smoking" between and after class hours, the high school being located very near by. On my occasional trips to the Children's Library with Ryan and during my volunteering in the building of the Haiku Garden I had often thought that this wooded and neglected eastside of the library grounds would make a great setting for a fern garden. I mentioned this idea to garden volunteers Susan Wallace and Janet Jackson and they enthusiastically endorsed the idea.

At the November, 1998 Hardy Fern Board Meeting, I asked my fellow board members if they would support a Fern Display Garden at the Bainbridge Library Grounds. After a brief discussion, I received their whole hearted and complete support in this undertaking. Board member and treasurer Jack M. Docter moved

that an educational grant be pledged by the foundation that would be earmarked for informational and educational signage in the garden. Again after discussion, the Hardy Fern Foundation pledged a $5000.00 educational grant to the garden in behalf of benefactor and former board member, the late Thomas Gillles, a lifelong librarian.

The next step was to approach the Bainbridge Library Board of Directors with the proposal for the building of a Fern Display and Study Garden officially sponsored by the Hardy Fern Foundation, and to determine what this would encompass. Board treasurer Jack M. Docter at the Library Board's January meeting in 1999 undertook this task and The Hardy Fern Foundation's proposal was gratefully accepted. We were on our way!

The Bainbridge Library grounds occupy a corner property that is approximately 300 ft. by 400 ft. The 300 foot north side borders High School Road and the west side borders Madison Avenue. Parking areas are located on the north and south sides of the property with the library building situated between these two parking areas. The Fern Display Garden is located on the east side of the library and its two parking areas.

This garden area is approximately 40 feet wide and 400 foot long which is an area of about 1/3 acre. The larger part of this area is predominantly covered by a canopy of Douglas Fir (*Pseudotsuga menziesii*) with heights of 50 to 100 feet, providing a wonderful foundation of shade for the garden. Six hundred feet of walking paths traverse and weave through the entire length of the garden and connect the two parking areas to each other and to the back lower entrance of the Children's Library located in the basement floor of the two floor structure. A woodland path also connects to the sidewalk along High School Road. A bio-swale ditch about 80 feet long which receives storm runoff from the south parking lot and the library building itself was in the north central area of the garden. This has been transformed into a natural granite boider lined meandering stream and large granite boulders have been placed throughout the garden. Two small foot bridges traverse the stream, one built of wood and the other a large black granite slab. A small waterfall emanating from a old growth burned out Western Red Cedar stump is situated at the head of the stream. In the center of the garden adjacent to the small waterfall feature and accessed by the granite slab bridge is an area that will be an open air reading shelter that is to be completed in April, 2000. The purpose of the design is first to provide a relatively natural, quiet and peaceful setting for reading, study and contemplation. Secondly, it is to provide a space to establish a comprehensive collection of the world's hardy ferns. And thirdly it is to provide a unique opportunity for people of all walks of life to observe and learn about ferns from all over the world.

Work on the construction of the garden began in mid February, 1999. The first task was to finish the cleanup of the site. Deadwood pruning the forest canopy, brush and blackberry removal was accomplished on consecutive weekends by volunteers from the community. The prunings and brush were then run through a chipper and the chips were later spread throughout the site and roto-tilled in.

continued on page 26

New Fern Display Garden continued from pg. 25

Basalt rock edging, retaining walls, and steps were constructed along the concrete formal entrance to the library and courtyard on the east side of the building. In March and April, the natural stream bed, granite boulder placement and waterfall were installed along with the layout and installation of the paths and bridges. In May installation of the automated irrigation system was completed and the entire site was mulched with a partially composted fir/alder bark. A number of small woodland trees and shrubs were also planted.

The first major planting of ferns occurred on the third weekend of June, 1999. But before this was to happen numerous ferns of many species and varieties had to be accumulated. Hardy Fern Board member and Fern Curator, Michelle Bundy was able to put together about 300 ferns representing 40 various species and varieties all coming from the Hardy Fern Foundation growing facility located at the Rhododendron Species Botanical Garden in Federal Way, WA. which is the location of the Hardy Fern Foundation's primary Fern Display and Test Garden. Michelle even took extra time to divide and pot up ferns from the Primary Fern Garden itself, so as to provide as many different ferns as possible. Anne Holt, past president of the Hardy Fern Foundation, provided many ferns, especially hundreds of *Polystichum munitum*, our native sword ferns collected from her garden on the north end of Bainbridge Island. These were used to fill in the many large open spaces in the Fern Display Garden. Other difficult to obtain fern species were donated by Hardy Fern Foundation Board members, Sylvia Duryee, Jocelyn Horder and Sue Olsen. Other ferns were purchased at very low prices from Torben Barfod, and Nils Sundquist. One thousand, five hundred ferns representing sixty fern species and varieties were planted on June 19 and 20, 1999, by volunteers from both The Hardy Fern Foundation and the Bainbridge Island community.

The Bainbridge Public Library Gardens along with the Fern Display and Study Garden have been attracting admiring visitors for many months. This past February, the library received first prize in the national "Grow Together Garden Contest" sponsored by Storey Books and the Friends of the Library U.S.A. With the award came a $1000 check and 65 of Storey's (the Vermont based publisher) best garden books. Cynthia Harrison, the Bainbridge Public Library Manager, entered the Library Gardens in this national contest last October. Cynthia and the entire library staff, have been enthusiastically supportive of the Fern Display and Study Garden since its inception and as it continues to grow throughout the year. Educational signs are still to come, along with completion of the reading shelter, continual expansion of the fern collection, and fern education classes.

Over the past nine months the ferns have been slowly growing and have come out quite nicely thanks in no small part to the very mild winter we have enjoyed this past winter. Many of the ferns were small when planted and I am impatient to see them grow to their full size and fill the open spaces of the garden. I will console myself with the old garden adage, "the first year they sleep, the second they creep and the third year they leap". I think I will use a generous supply of Whitney Farms Organic fertilizer and help them creep a little faster. New ferns species and varieties will be planted this spring and throughout the year and the

years to come. I was able to acquire 100 *Arachniodes simplicior* var. *variegata* (variegated holly fern) and some *Woodwardia fimbriata* (giant chain fern), two of my very favorites. The garden site has a wide variety of environmental variation - from full sun to full shade, from wet (along the stream) to dry. I will be able to manipulate the soil acidity and composition for some of the calcareous loving and/or scree loving ferns, and hopefully other conditions that I will discover along the fern embroidered path. That is the purpose of a Fern Display and Study Garden - to observe ferns from all over world, to learn how they grow, what they like and provide for them, evaluate them for their hardiness, their garden worthiness, and their innate beauty.

International Symposium -
July 23-26, 2001
at the University of Surrey, Guildford, England
Fern Flora Worldwide : Threats and Responses

In recognition of the increasing pressures being placed on pteridophyte populations worldwide, the British Pteridological Society, in conjunction with the World Conservation Union (IUCN) Species Survival Commission Specialist Group for Pteridophytes, is organizing this international symposium. Specialized habitat requirements are widespread across the fern flora, making pteridophytes particularly vulnerable to familiar threats such as alien plant invasions, the activities of man, and climatic change. It is expected that this symposium will be a significant contribution to pteridophyte conservation awareness and action.

The Program will focus on:
A Status Report, Conservation Techniques, Networking with Others, Action Plans and Programs, and Education.

For further information please contact
The British Pteridological Society
Department of Botany
Natural History Museum
Cromwell Rd.
London SW7 5BD
England

THE HARDY FERN FOUNDATION
QUARTERLY

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P.O. Box 166
Medina, WA 98039-0166.

Articles, photos, fern and gardening questions, letters to the editor, and other contributions are welcomed!

Please send your submissions to
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2003 128th Ave SE,
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Cheilanthes tomentosa
Woolly Lip Fern

James R. Horrocks
Salt Lake City

Cheilanthes tomentosa

According to Edgar T. Wherry, the genus name "*Cheilanthes*" refers to "a fancied lip-like aspect of the strips of reflexed indusioid tissue. The technical name from the Greek for marginal flowers, was proposed in 1806". The species name "tomentosa" comes from the word "tomentous" which refers to the dense, woolly, matted hair or tomentum.

The Woolly Lip Fern is native to northern Mexico and the southern portion of the United States, extending from Arizona across to the mountains of Pennsylvania and into West Virginia. It is frequent in most of the southern states in what are termed the southern uplands. It is disjunct in many locations. This species is mostly, according to Lellinger "epipetric in crevices and on ledges of various circumneutral to subacid rocks, and terrestrial among boulders on talus slopes". It also occurs on limestone in some areas.

The Woolly Lip Fern may be confused with other species of *Cheilanthes*, particularly *C. fendleri*. It's most distinguishing features are its rounded pinnulets and the tripinnate cut of the fronds.

Description: The rhizomes are thick, short-creeping and branching, bearing rather long and narrow medium to dark brown scales. The scales can often be quite contrasting in shades of pale reddish-brown with a much darker brown central stripe. The stipes are about one-third the length of the fronds, which can be from 8 to 18 inches in length, occasionally even longer. The fronds are produced basket-like and are not coiled but merely bent over. The fronds are bright green with sparse hairs above but more densely hairy or scaly beneath, the hairs white becoming reddish or orange-brown. The fronds are said to be somewhat evergreen but Mickel describes them as deciduous. (*They are evergreen in the Pacific Northwest.....ed.*) They are mostly tripinnate with the pinnulets rounded. The outline of the frond is oblong to lanceolate, rather obtuse or truncated below but acute or acuminate at the apex. The pinnule margins are strongly rolled under and the sori are hence well protected by the rolled over false indusia. There is no true indusium. The sori occur along the margins of the pinnules and are small.

Culture: It becomes obvious from reading varied fern literature that there is considerable confusion as to the cultural requirements of this fern as well as other so-called xerophytes. Some authors treat it as only a cold-house plant, tricky to grow or even difficult to almost impossible. Mickel, on the other hand,

regards it as easy to grow as long as attention is paid to its special cultural requirements. Barbara Joe Hoshizaki, in her *Fern Growers Manual*, devotes a section in Chapter 10 to the culture of xerophytic ferns. She recommends that "the fronds should be kept free of water droplets". "Their roots prefer a well-drained soil which is kept on the drier side of moist. Most seem to do best where there is an evenly moist soil or one that does not rapidly fluctuate between and wet and a dry condition. In cultivation they grow best in bright but indirect sunlight except along cloudy coastal areas, where they may be planted in full sun." The best soil to use "consists of one part gravely sand to one part peat or leaf mold". (*We have found that adding fine bark improves the soil texture, drainage and health of our xeric ferns....ed*)

The Woolly Lip Fern is an excellent rock garden plant if the aforementioned conditions can be met. The genus *Cheilanthes*, once established, is able to survive extended dry spells, especially if they have a cool root run provided by rocks and boulders. They may go dormant and loose their fronds during drought but are real survivors, being often referred to as "resurrection plants". All species of *Cheilanthes* come easily from spores, being apogamous, a trait shared by many xerophytic ferns. One interesting method of growing these ferns is by double-potting them, using clay pots. The same soil mix is used in both pots and this procedure maintains the soil moisture in a more uniform manner for longer periods of time. (Double-potting works well with other ferns too, particularly if they are young and growing in a greenhouse or cold-frame. They will grow better and faster if this method is used.)

Xerophytic ferns such as *Cheilanthes tomentosa* are perfectly at home in the desert garden as long as they have a cool root run and a protected nook under large stones. (*And are protected from winter wet....ed.*) The Woolly Lip Fern along with other xerophytes is a worthy challenge for those who would like to try something different.

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A Field Manual of the Ferns and Fern Allies of the United States and Canada, 1985. David B. Lellinger, Smithsonian Institute, Washington, D.C.

Fern Growers Manual, 1975. Barbara Joe Hoshizaki, Alfred A. Knopf, Inc., New York.

Ferns for American Gardens, 1994. John Mickel, MacMillan Publishing Co., New York.

Hunting for Xeric Ferns in Northern California

David Schwartz - Bakersfield, CA

During the summer of 1999, fellow fern enthusiast Philip Hammond and I made two whirlwind fern trips. The first trip was in mid-June to the central Sierra-Nevada Mts. north of Truckee, California. The other trip was taken in the middle of September to the southern Sierra-Nevadas (Sequoia-Kings National Park).

The focus of the two trips was to see populations of rare (for California) *Asplenlums*. The goal of the first trip, *A. trichomanes-ramosum (A. viride)*, is documented for only one location in California—on the east side of the Sierra Buttes just north of Sierra City at about 8,000' to 8,500'. The second trip focused on *A. septentrionale*, known from two locations in California. One is Lassen Volcanic National Park at about 7,000' in northeastern California, and the population we were interested in (it's closer to us), located at about 11,000' along the western divide of the Sierra Nevada Mts. at Columbine Lake in the Sequoia-Kings National Park, Tulare County.

I was hoping to see these *Asplenlums* in the wild for the first time ever (Philip has seen both before in the eastern US as well as in Europe), and at the same time show Philip populations of various species of *Pellaea* found in California that he had not seen before. The Sierra City trip was over three days (two of which were actual fern-hunting days) with our layover nights spent in Reno, Nevada.

The first day of trip number one started out from San Francisco (where Philip calls home) at 6:00 a.m. Philip and I were joined on this first trip by my 11 year-old son, Michael. Michael was hoping to score some reptiles while we were scouting ferns.

Our first stop along the way was just outside of Grass Valley along Lime Kiln Road. We were hoping to include the lime-loving *Cheilanthes cooperae* among the ferns that we would see upon our trip. No such luck; we couldn't even find any limestone along the road (much less any 'kilns'). We did however, find our first ferns for the trip, *Pellaea andromedifolia* and *Pentagramma triangularis* var. *triangularis*, both of which were growing along the roadside.

We continued on to our next quick stop at the point where we crossed the South Yuba River. Here we decided to hike down towards the river to see what we might. We saw more *Pentagramma triangularis* and our *second Pellaea, P. mucronata* var. *mucronata*. We also saw *Dryopteris arguta* growing under the oak trees by the trail and along the river itself we saw *Woodwardia fimbriata*. Michael also scored at this spot. We caught and released a nice Pacific Gopher Snake on the trail down to the river.

Before continuing our saga I need to make a brief note. As my e-mail address (XericFerns@aol.com) indicates, I tend to have a strong affinity for xeric (dry-land/desert type) ferns. In the United States this includes the genera *Cheilanthes, Pellaea, Pentagramma, Argyrochosma, Astrolepis, Bommeria, Aspidotis* and *Notholaena*. I may tend to gloss over what I refer to as "those boring woodland ferns". In fact, I love all ferns (I have yet to meet a fern I didn't like—tropical or woodland, rare or common). We did in fact see many ferns on the trip other than

the xeric types that I tend to emphasize. As this narrative progresses I'll try to remember to mention any other, less exciting ferns for those who might not share my predilection for xerics.

Continuing on our trip, we finally hit good xeric fern country at about noon as we drove along HYWY 49 and the North Yuba River. The first ferns we saw here (at about 3,500') were *Cheilanthes gracillima. C. gracillima* is probably the most widespread and common of the xeric-type ferns in the Sierras. It is found growing in joints of granite rock that a razor blade couldn't fit between and is one of the most beautiful little ferns imaginable.

As we got closer to Sierra City, we stopped several times to check out the *Pellaeas* growing in the rock along the road cuts. Philip was hoping to see *P. brachyptera* growing in the wild for the first time and I wanted to show Philip some hybrids between *P. mucronata* and *P. brachyptera* that I had seen in the area in years past. Low and behold, we found either a new *Pellaea* hybrid that I wasn't familiar with, or a very aberrant form *of P. mucronata.* The fronds appeared to have viable spores so I collected some for sowing. (Thus far I have gametophytes but no sporophytes.) In this same area, we also found some *Adiantum aleuticum* and *Polystichum imbricans* growing back in a shaded watercourse that ran under the road.

Pellaea hybrid *P. brachyptera* x *P. bridgesii*

Just past Sierra City we stopped at a favorite campground of mine (and Michael's) so that I could show Philip the *Pellaea brachyptera* that grows in great abundance in the area, as well as the *P. brachyptera* x *P. mucronata* hybrid that I knew of from previous trips. While I was showing the *Pellaeas* to Philip, Michael again spotted a nice gopher snake crawling through the fern-filled talus rock.

Typically, *P. brachyptera* grows in very exposed talus slopes, the talus rocks being in the nature of 3" to 6" in diameter and covering the ground up to 18" deep. It is truly amazing to see populations of this fern as well as the hybrid and even *Cheilanthes gracillima* growing in such seemingly inhospitable situations on these rocky hillsides with full southern exposure.

continued on page 32

Hunting for Xeric Ferns in Northern California cont. from pg. 31

From the first *Pellaea brachyptera* population, we hiked a couple of miles along the Pacific Crest Trail to explore and to look for another fairly common fern found in the Sierras, *Pellaea bridgesii*. I also wanted to check out the status of, and show Philip, a population of another hybrid of which I was familiar—one between (most likely) *P. bridgesii* and *P. brachyptera*. We saw both populations of ferns and I got some great fern pictures for future slide shows. Also found in this general area were *Cystopteris fragilis* and *Athyrium filix-femina*

We finished our ferning for the day by hiking back along a loop trail to the car. While not finding any new ferns, we saw lots more of the *Cheilanthes gracillima* and *P. brachyptera* growing along the trail. We still had a drive of a couple of hours into Reno that night before returning the next morning to the same area to look for the elusive *Aspienium trichomanes-ramosum*.

Philip and I (Michael opted to stay in Reno with family friends; too many ferns and not enough reptiles) began the next day of our trip by hitting the road out of Reno at 5:00 a.m. Our first stop was about 20 minutes north of Truckee. I was hoping to show Philip what I thought might be a population of *Woodsia ssp.* that I had happened upon about nine or ten years back. We could see the ferns we wanted from the shoulder of the road but the creek between us and the ferns was swollen from spring snow melt and didn't look especially fordable at the time.

We opted to explore a small ravine on our side of the road figuring that what was on one side of the road should be on the other. After twenty minutes of searching, about all we came up with were some nice little clumps of *Cystopteris fragilis*. We decided on one more look-see for a way to ford the stream. After crashing through the brush for a few minutes, we managed to find a small (5" diameter) tree that had fallen across the stream. After some slight trepidation on Philip's part, we were on our way.

The first thing we encountered was *Cheilanthes gracillima*. We then spotted a nice little plant of *Cryptogramma acrostichoides* (most likely, although it could have been *C. cascadensis*) that afforded a great camera shot. We then hit the talus slope. It was a tricky crossing to the plants we had seen from the roadside as this was a very loose slope sitting at maximum angle of repose. I carefully managed my way across the talus to the plants and collected some fronds for Philip to look at since he was more familiar with *Woodsia* than I. His verdict; we had forded the swollen stream and hazarded the life threatening talus slope for more *Cystopteris fragilis*! Back to the Sierra Buttes we headed.

As we approached the Buttes from the east, I observed something from that vantage that we hadn't noticed when we had left for Reno the night before. Snow! The whole eastern side of the Sierra Buttes was covered in snow from a late season storm that had hit the area a couple weeks prior. We assessed our options. We could continue our search for *Asplenium trichomanes-ramosum*, which I had never seen, and hope it was below the snow line. Or we could give up on that fern entirely and backtrack about three hours to a site that I knew of that contained some *Pellaea breweri*, a fern that Philip had never seen. We opted

Aspidotis densa - Sierra Buttes

for the rare *Asplenium.*

Our trail from the Sardine Lakes area started out at about 5500' on an old mine access road. We again had to ford a stream by way of a fallen tree but the stream was much more gentle and shallow and the tree much, much larger (to Philip's relief). The first fern we encountered was again the *Pellaea brachyptera,* growing out from under boulders along the trail. Continuing on, we encountered scattered ferns, mostly *Cheilanthes gracillima,* until we hit about the 6500' elevation. Here we started to encounter lots of *Aspidotis densa.* Again, lots of good photo opportunities.

At 7000' we started to hit some scattered limestone outcroppings, habitat for our thus far elusive *Asplenium,* but no luck. We hit the trail's end at 7500' elevation. We also hit snow! We trudged up the hill through the snow until we reached a small knoll, hoping that we would find at least some scattered clearings that might afford us our prize. As we surveyed the surrounding cirque, we came to the conclusion that unless the fern was right under our feet, we had about come to the fruitless end of our search for *A. trichomanes-ramosum.*

Well, the fern wasn't under our feet. There were no new ferns as we dragged our tired bodies down the trail toward the car but we did get some nice photos of a small rattlesnake crossing the trail before us. Michael was going to be disappointed not to have seen it.

We enjoyed a wonderful fern quest with lots of photo opts. Perhaps our trip in September to the Sequoia-Kings National Park would be more fruitful in regards to *Asplenium* in California. Then again, perhaps not.

The location of our next fern outing, Sequoia-Kings National Park, was an area I had been to twice before looking for *A. septentrionale.* Both times I had to turn back before reaching the site location.

My first attempt had been made alone. I reached the 11,000' elevation at about an hour and half before sunset. I still had a 600' climb to reach Sawtooth Pass and a 600' trek down the other side just to reach the site location along the trail at Columbine Lake. I figured that discretion was the better part of valor and

continued on page 34

Hunting for Xeric Ferns in Northern California cont. from pg. 33

opted to head back down the trail while I still had (some) daylight. My second attempt was made with fellow fern enthusiast, Robin Halley who hails from San Diego. Unfortunately, Robin became ill on the trip and we had to call it quits at about the 10, 500' elevation.

Philip and I had planned our second fern trip for later in the season (the third week in September) as the elevation we were shooting for was about 11,600' and we didn't want to have any "snow" surprises next time. We left Bakersfield for Sequoia-Kings National Park at 3:30 a.m. At a half-hour before sunrise, two and a half hours and 7,000' later we could just make out our first fern, *Athyrium filix-femina*, growing along the creeks. Alongside the road we could also spot little clumps of *Aspidotis densa* growing out of the rock. As we zipped along on our way to the trailhead, I pointed out some *Pellaea mucronata* var. *californica* to Philip. He was keen to stop and look closer but in the interest of time I convinced him that we could easily look at them on our way back. Finally we reached the trailhead at 7,800'. At 6:30 a.m., the sun was almost up and we only had 3,800' of elevation to climb.

Pellaea bridgesii - Sequoia-Kings National Park

As we headed up the trail, the first ferns we encountered were *Cheilanthes intertexta* and *C. gracillima* growing side by side. We continued on the trail a bit further to a site with *Pellaea bridgesii* growing in great profusion. Here we searched around a bit for a fern I had spotted on my previous trips to the area, a possible hybrid between *P. bridgesii* and *P. mucronata* var. *californica*. I couldn't find the plant to show Philip. Possibly it no longer grew there. It could also have been the fact that the sun hadn't made it over the tops of the peaks towering above us yet which made it difficult in the pre-dawn light to spot that one plant out of the fifty or so that grew there. Maybe we'd spot it on the way back down the trail.

After making a small creek crossing (no trees involved this time) at about 8,800', we entered the forested section of the trail and finally hit new (for Philip) fern territory. We spied *P. breweri* growing out of the rock beside the trail. This late in the season at this elevation, the fronds were dried up and looked like brown

crepe paper. Unlike most *Pellaea*, the fronds of this fern do not persist on the plant from year to year.

Continuing up the trail we spotted some *Cystopteris fragilis*, also brown and past it's growing season. We saw some *C. fragilis* that was still green as we trekked on and then Philip spotted some *Woodsia* growing in amongst them. Whether it was *W. scopulina* or *W. oregana* it couldn't be sure of but at least this time, it was definitely a *Woodsia*. Here, we also started to see *Crytogramma acrostichoides* growing in among the rocks.

We eased out of the steep switchback trail and forest at 10,000' for a leisurely trek along an exposed, talus-strewn slope. Along this stretch of trail (the easiest of the whole trip) until we reached the Monarch Lakes, the only ferns we encountered were more *Crytogramma acrostichoides* and *Pellaea breweri*. At this elevation however, the *P. breweri* was green and actively growing, a nice treat for Philip to see.

We reached the Monarch Lakes at 10,400' to find our next fern on the trip, *Athyrium alpestre*, growing at the bases of the large granite boulders that were all around the lower lake area. We also reached the most challenging leg of our trek.

The trail above us was quite steep, gaining 1,200' in about three-quarters of a mile (we only gained 200' in the previous three-quarters of a mile!). The slope was also composed of very loose, decomposed granite so that it felt as if for "each step forward it was two steps back".

Athyrium alpestre
Monarch Lakes, Sequoia-Kings National Park

We proceeded slowly; climb for two or three minutes, rest a minute, climb for two or three minutes, rest a minute... An hour later we reached Sawtooth Pass at 11,600'. The view was breathtaking as we looked east through the Great Western Divide and saw the glacial valleys carved during the last ice age. We rested up for about fifteen minutes before making our way down the trail to Columbine Lake and (hopefully) *Asplenium septentrionale*.

It was about 1:30 in the afternoon. We'd been on the trail for seven hours and it would take at least four hours to get back down to the trailhead at day's end. We

continued on page 36

Hunting for Xeric Ferns in Northern California cont. from pg. 35

figured we had about an hour and a half to make the half-mile hike down to Columbine Lake and find the elusive *Aspenium* before needing to head back up/down the trial.

An hour and half later after having scoured the whole northeast side of the lake, all we managed to find was *P. breweri* and *Cystopteris fragilis*. The *Aspeniums* had once again managed to elude us! We couldn't afford any more time on the trail and dejected, we made our way back to the car. But we weren't done yet!

Four and half hours later, after having spent thirteen hours on the trail, we drove ten minutes down the road to make one final stop before starting on the three hour trip back to Bakersfield. With the sun having set forty-five minutes before, we grabbed flashlights and went off traipsing through the manzanita brush so that Phillip could at least get a good, close-up view of *P. mucronata* var. *californica*—that, at least I knew we could find!

2000 Spore Exchange Addenda

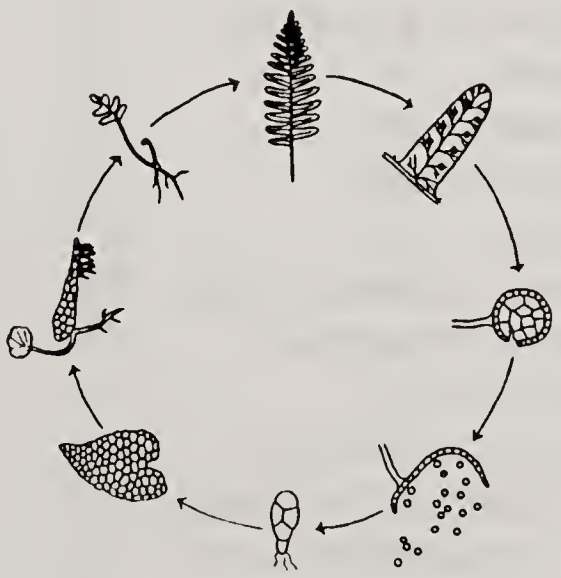
Donor list

1. Sue Olsen
2. Sylvia Duryee
3. RSBG Michelle Bundy
4. Mareen Kruckeberg
5. Joan Gottlieb
6. Zdeněk Seibert
7. Jocelyn Horder
8. Willanna Bradner
9. David Schwartz
10. Frank Damgaard
11. Dorothy Linde
12. Inniswood Metro Gardens
13. Peggy McGill
14. Marge Baird

To order: **Please print your selections clearly in** alphabetical order **using the genus, species and cultivar. Include 25 cents for each fern requested (check payable to the Hardy Fern Foundation) and a** self-addressed stamped envelope. **No charge for overseas members, but please enclose an international postal coupon (2 for larger orders) and an envelope. Maximum order 25 per year. Mail requests to:**

Jocelyn Horder
16813 Lemolo Shore Drive NE
Poulsbo, WA 98370

Numbe	Genus	Species	Var or CV	Wild Coll	Year	Donor #
91	Arachniodes	miqueliana			99	12
92	Arachniodes	simplicior	Variegata		99	10, 13,
93	Asplenium	trichomanes			99	10
94	Asplenium	X pinnatifidum			00	11
95	Athyrium	filix-femina	Rubellum		99	13
96	Athyrium	filix-femina	X niponicum-	pictum	99	13
97	Athyrium	thylypteroides			99	13
98	Camptosorus	rhizophyllus			99	10
99	Cyrtomium	caryotideum			00	1
100	Cyrtomium	falcatum			99	13
101	Cyrtomium	fortunei			99	13, 12,
102	Cystopteris	bulbifera			99	13
103	Diplazium	pycnocarpon			99	13
104	Dryopteris	cycadina			99	13
105	Dryopteris	filix-mas	Linearis		99	10
106	Dryopteris	ludoviciana			99	13
107	Dryopteris	oreades			99	12
108	Dryopteris	polylepis			99	13
109	Dryopteris	pycnopteroides			99	13
110	Dryopteris	remota			99	13
111	Dryopteris	sacrosanta			99	13
112	Dryopteris	vidalii			99	13
113	Dryopteris	wallichiana			99	12
114	Hypolepis	repens			99	13
115	Llavea	cordifolia			99	10
116	Pellaea	viridis			99	13
117	Polystichum	acrostichoides			99	13
118	Polystichum	dudleyi		Monterey	99	10
119	Polystichum	polyblepharum			99	13
120	Thelypteris	decursive-pinnata			99	13
121	Thelypteris	dentata			99	13
122	Thelypteris	kunthii			99	13



Life Cycle of a Fern

Rhododendron Species Foundation & Botanical Garden

Fern Name	Accession Number
Adiantum aleuticum 'Subpumilum'	90/319
Adiantum pedatum	90/322
Adiantum venustum	90/149
Adiantum viride-montanum	90/323
Arachniodes simplicior 'Major'	90/147
Asplenium trichomanes	
Asplenium trichomanes 'Incisum'	91/038
Athyrium filix-femina 'Bornholmiense'	90/151
Athyrium filix-femina 'Minutissimum'	90/290
Athyrium mesosorum	90/314
Athyrium niponicum	90/291
Athyrium niponicum 'Pictum'	90/132
Athyrium otophorum	90/129
Blechnum penna-marina	093/93
Blechnum spicant	90/282
Blechnum spicant 'Serratum Rickard'	90/283
Cryptogramma crispa	
Cyrtomium caryotideum	91/040
Cyrtomium falcatum x caryotideum	90/146
Cyrtomium fortunei 'Intermedium'	90/286
Cyrtomium lonchitoides	187/94
Cyrtomium macrophyllum	90/285
Dryopteris celsa	
Dryopteris championii	90/303
Dryopteris clintoniana x goldiana	90/375
Dryopteris cycadina	90/376
Dryopteris cystolepidota	168/94
Dryopteris darjeelingensis	186/94
Dryopteris dilatata	90/294
Dryopteris dilatata 'Lepidota Crispa'	90/373
Dryopteris dilatata 'Recurvata'	90/139
Dryopteris erythrosora	90/126
Dryopteris erythrosora 'Prolifica'	90/297
Dryopteris f-m 'Linearis Polydactyla'	90/135
Dryopteris f-m 'Undulata Robusta'	90/136
Dryopteris filix-mas	90/159
Dryopteris formosana	91/050
Dryopteris goeringiana	

Evaluation for Hardy Fern Foundation 1999

Number Alive	Overall Size	Spore past yr.	Commercial Value	Garden Worthiness rete 1 to 5
1	12	yes	yes	5
1	28	yes	yes	5
lg. patch	20	yes	yes	5
2	29	yes	yes	5
1	33	yes	yes	5
1	6	yes	yes	5
4	11	yes	yes	5
1	12	yes	yes	4
3	24	yes	yes	5
0	12	no	no	2
3	20	yes	yes	4
9	24	yes	yes	5
5	30	yes	yes	5
many	11	yes	yes	5
3	36	yes	yes	5
4	22		yes	5
many	11	yes	yes	5
6	20	yes	yes	5
1	14	no	yes	5
3	18	yes	yes	5
3	12	yes	yes	4
5	20	yes	yes	5
5	18	yes	yes	3
1	20	yes	yes	5
1	36	yes	yes	4
5	18	yes	yes	4
3	22	yes	yes	5
5	29	yes	yes	4
6	18	yes	yes	5
6	15	yes	yes	5
8	43	yes	yes	5
2	12	yes	yes	5
3	15	yes	yes	5
8	38	yes	yes	5
8	50	yes	yes	5
2	42	yes	yes	5
8	18	yes	yes	5
3	30	yes	yes	4

Rhododendron Species Foundation & Botanical Garden

Fern Name	Accession Number
Dryopteris lacera	90/311
Dryopteris lepidopoda	185/94
Dryopteris ludoviciana	90/160
Dryopteris polylepis	90/308
Dryopteris pseudo filix-mas	90/161
Dryopteris sacrosancta	
Dryopteris scottii	184/94
Dryopteris sieboldii	90/292
Dryopteris uniformis	
Dryopteris varia 'Setosa'	90/127
Dryopteris wallichiana	90/138
Gymnocarpium dryopteris	90/130
Gymnocarpium dryopteris 'Plumosum'	90/131
Gymnocarpium oyamense	
Hypolepsis punctata.	
Matteuccia struthiopteris	90/292
Onoclea sensibilis	
Osmunda cinnamomea	
Osmunda claytonia	90/302
Osmunda regalis	
Phyllitis scolopendrium	90/289
Polypodium scouleri	90/287
Polystichum acrostichoides	90/145
Polystichum aculeatum	90/305
Polystichum braunii	90/164
Polystichum californicum	91/044
Polystichum makinoi	91/045
Polystichum munitum x andersonii	
Polystichum neolobatum	91/046
Polystichum polyblepharum	90/165
Polystichum retroso-paleaceum	90/313
Polystichum setiferum 'Thompsonii'	90/140
Polystichum sp. China	90/162
Polystichum squarrosum	90/312
Polystichum tsus-simense	90/163
Polystichum x illyricum	90/304
Polystichum yaemonse	90/166
Thelypteris decursive-pinnata	90/128

Evaluation for Hardy Fern Foundation 1999

Number Alive	Overall Size	Spore past yr.	Commercial Value	Garden Worthiness rete 1 to 5
1	18	yes	yes	3
6	24	yes	yes	5
9	24	yes	yes	5
1	24	yes	yes	5
1lg + 6sm	46	yes	yes	5
5	14	yes	yes	4
4		no		
2	20	yes	yes	4
6	18	yes	yes	4
12	26	yes	yes	5
8	24	yes	yes	5
many	10	yes	yes	5
many	10	yes	yes	5
3	10	yes	yes	3
many	20	yes	yes	4
13	26	yes	yes	4
patch	18	yes	yes	5
many	52	yes	yes	5
2	42	yes	yes	5
many	48	yes	yes	5
1	12	yes	yes	4
patch	13	yes	yes	5
5	12	yes	yes	3
1	15	yes	yes	5
5	18	yes	yes	5
4	12	yes	yes	3
8	20	yes	yes	5
5	20	yes	yes	5
7	5	yes	yes	5
8	18	yes	yes	5
3	24	yes	yes	3
1	12	yes		2
2	18	yes	yes	4
1	12	yes	yes	5
0 eaten			yes	5
1	16	yes	yes	5
0				
many	27	yes	yes	5

Rhododendron Species Foundation & Botanical Garden

Fern Name	Accession Number
Thelypteris phegopteris	90/155
Woodsia obtusa	90/310
Woodwardia areolata	90/167
Woodwardia fimbriata	

ALL Ferns shipped — Birmingham Botanical Gardens

Fern Name	Accession Number	Number Alive
Athyrium otophorum		2
Adiantum venustum		3
Aslenium trichomanes		0
Blechum penna marina		3
Cheilanthes argentea		0
Cyrtomium caryotideum		4
Cyrtomium falcatum 'Rochfordianum'		5
Cyrtomiun fortunei		5
Doodia media		0
Dryopteris affinis		8
Dryopteris affinis 'Crispa Barnes'		5
Dryopteris affinis 'Azorica'		5
Dryopteris arguta		0
Dryopteris bissetiana		1
Dryopteris blanfordii		3
Dryopteris championii		3
Dryopteris crassirhizoma		5
Dryopteris crispifolia		2
Dryopteris cycadina		2
Dryopteris dilatata 'Jimmy Dyce'		1
Dryopteris dilatata'Lepidota Cristata'		1
Dryopteris filix-mas Undulata robusta		2
Dryopteris lacera 'type'		5
Dryopteris lepidopoda		2
Dryopteris pseudo filix-mas		4
Dryopteris sabae		0
Dryopteris sacrosancta		5

Evaluation for Hardy Fern Foundation 1999

Number Alive	Overall Size	Spore past yr.	Commercial Value	Garden Worthiness rete 1 to 5
many	16	yes	yes	4
1	18	yes	yes	5
many	20	yes	yes	5
2	32	yes	yes	3

Evaluation for Hardy Fern Foundation 1999

Number Dead	Overall Size in.	Length of new growth	Spore past yr.	Commercial Value	Garden Worthiness rate 1 to 5
	34	22	yes	yes	5
2	16	7	no	yes	4
4					
	10	4	no	yes	5
5					
1	19	10	no	yes	3
	22	15	no	yes	5
	25	16	yes	yes	5
				no	
	24	8	yes	yes	4
	18	10	no	yes	3
	17	12	no	yes	3
				no	
	36	21	yes	yes	5
	36	25	yes		5
1	22	15	yes	yes	3
	25	18	no	yes	4
	12	7	no	yes	1
2	43	30	yes	yes	5
	24	15	yes	yes	3
	17	12	no	yes	1
	36	22	yes	yes	4
	27	17	yes	yes	5
	20	11	yes	yes	3
1	47	22	yes	yes	5
2					
	40	25	yes	yes	5

ALL Ferns shipped **Birmingham Botanical Gardens**

Fern Name	Accession Number	Number Alive
Dryopteris sublacera		5
Dryopteris wallichiana		3
Osmunda regalis 'Purpurescens'		1
Osmunda regalis 'Undulata'		2
Phegopteris decursive-pinnata		50
Phyllitis scolopendrium		1
Polypodium interjectum		5
Polystichum andersonii		0
Polystichum mayebarae		0
Polystichum neolobatum		2
Polystichum rigens		2
Polystichum setiferum		3
Polystichum setiferum 'Divisilobum'		3
Pteris excelsa		0
Thelypteris viridifrons		2
Woodsia polystichoides		0
Woodwardia fimbriata		0

ALL Ferns shipped **Georgeson Botanical Gardens**

Fern Name	Accession Number	Number Alive
Adiantum venustum	12391	
Aslenium trichomanes	12392	
Athyrium otophorum	11784	
Cheilanthes argentea	12901	
Cyrtomium caryotideum	12902	
Cyrtomium macrophyllum	12903	
Dryopteris affinis	12393	
Dryopteris affinis 'Crispa Barnes'	13962	3
Dryopteris arguta	11785	
Dryopteris bissetiana	17786	
Dryopteris celsa	12394	
Dryopteris championii	12397	
Dryopteris crassirhizoma	12398	
Dryopteris crassirhizoma	12904	
Dryopteris cycadina	12399	
Dryopteris dilatata 'Jimmy Dyce'	11787	

Evaluation for Hardy Fern Foundation 1999

Number Dead	Overall Size in.	Length of new growth	Spore past yr.	Commercial Value	Garden Worthiness rate 1 to 5
	26	16	yes	yes	5
0	30	18	yes	yes	5
	27	18	yes	yes	3
	35	23	yes	yes	4
	38	28	yes	yes	5
	5	2	no	no	
	39	22	yes	yes	5
	19	12	yes	yes	3
	10	9	no	no	
	30	20	yes	yes	4
0	24	13	no	yes	4
2					
1	60	42	yes	yes	5
3					

Evaluation for Hardy Fern Foundation 1999

Number Dead	Overall Size in.	Length of new growth	Spore past yr.	Commercial Value	Garden Worthiness rate 1 to 5
all					
all					
all					
all					
5			no	no	1
all					
all					
2	13	13	no	possibly	3
all					
all					
all					
all					
all					
all					
all					
all					

ALL Ferns shipped **Georgeson Botanical Gardens**

Fern Name	Accession Number	Number Alive
Dryopteris dilatata 'Lepidota Cristata'	11788	
Dryopteris expansa	14094	10
Dryopteris f-m 'Undulata Robusta'	11789	
Dryopteris fragrams	13761	2
Dryopteris pseudo filix-mas	12400	
Dryopteris remota	12906	2
Dryopteris sacrosancta	12395	
Dryopteris sieboldii	12907	
Dryopteris sublacera	12396	
Dryopteris wallichiana	12403	
Lygodium palmatum	12401	
Matteuccu struthriopteris	13930	10
Osmunda regalis 'Purpurescens'	11790	
Osmunda regalis 'Undulata'	11791	
Phegopteris connectilis	10669	3
Phegopteris decursive-pinnata	11792	
Phyllitis scolopendrium	11793	
Polypodium braunii	12567	8
Polystichum andersonii	12553	
Polystichum polyblepharum	12908	
Polystichum setiferum	11794	
Polystichum setiferum	12401	
Thelypteris viridifrons		
Woodsia polystichoides	12402	
Woodwardia fimbriata		

ALL Ferns shipped 1997 **Harry P. Leu Gardens**

Fern Name	Accession Number	Number Alive
Cyrtomium caryotideum	97-532	1
Cyrtomium macrophyllum	97-531	1
Dryopteris celsa	99-861	3
Dryopteris pseudo filix-mas	98-724	3
Dryopteris sieboldii	99-862	5
Polystichum mayebarae	98-722	3
Polystichum polyblepharum	99-863	3
Polystichum setiferum	99-864	2

Evaluation for Hardy Fern Foundation 1999

Number Dead	Overall Size in.	Length of new growth	Spore past yr.	Commercial Value	Garden Worthiness rate 1 to 5
all					
	53	64	yes	yes	5
all					
	8	8	yes	possibly	
all					
	13	18	no	too early	
all					
all					
all					
all					
all					
	58	76	yes	yes	5
all					
all					
	33	33	yes	yes	4
all					
all					
2	48	48	yes	yes	5
5				no	1
all					
5					
all					
5					
all					
3					

Evaluation for Hardy Fern Foundation 1999

Number Dead	Overall Size in.	Length of new growth	Spore past yr.	Commercial Value	Garden Worthiness rate 1 to 5
	3	3	no	no	4
	6	4	yes	yes	4
	12	12	yes	yes	4
	7	5	no	yes	4
	6	5	yes	yes	5
	3	3	yes	maybe	3
	5	5	yes	yes	5
	5	4	yes	maybe	3

ALL Ferns shipped **Inniswood Metro Gardens**

Fern Name	Accession Number	Number Alive
Athyrium f-f 'Vernoniae Cristatum'	19950064	3
Cyrtomium caryotideum	19970142	4
Cyrtomium macrophyllum	19970143	5
Dryopteris affinis	19960076	5
Dryopteris affinis 'Crispa Barnes'	19970144	5
Dryopteris erythrosora		4
Dryopteris pseudo filix-mas	19960077	5
Dryopteris pseudo filix-mas	19970145	5
Dryopteris remota	1997	5
Dryopteris sacrosancta	19950059	5
Dryopteris sublacera	19960078	1
Dryopteris wallichiana	19950060	3
Phyllitis scolopendrium	19950209	3
Polystichum andersonii	19960079	
Polystichum mayebarae		
Pteris excelsa	19950061	1
Thelypteris viridifrons	19950062	3
Woodwardia fimbriata	19950063	0

ALL Ferns shipped 1998 **Lewis Ginter Botanical Garden**

Adiantum venustum	98f0709	0
Blechum penna marina	98f0710	3
Cyrtomium falcatum 'Rochfordianum'	98f0712	5
Cyrtomium macrophyllum	98f0711	5
Cyrtomiun fortunei	98f0713	5
Dryopteris lacera	98f0702	3
Dryopteris affinis 'Azorica'	98f0700	5
Dryopteris blanfordii	98f0714	5
Dryopteris celsa	98f0715	3
Dryopteris crassirhizoma	98f0716	2
Dryopteris crispifolia	98f0701	0
Dryopteris lepidopoda	98f0703	2
Dryopteris sieboldii	98f0705	5
Dryopteris stewartii	98f0706	4
Dryopteris sublacera	98f0707	3
Polypodium interjectum	98f0708	5
Polystichum neolobatum	98f0699	2

Evaluation for Hardy Fern Foundation 1999

Number Dead	Overall Size in.	Length of new growth	Spore past yr.	Commercial Value	Garden Worthiness rate 1 to 5
1	45	30	yes	yes	5
1	9	8	no	no	3
	18	16	no	no	3
	28	23	yes	yes	5
	24	15	no	yes	4
	18	14	yes	yes	5
	28	24	yes	yes	5
	26	16		yes	5
	20	24	yes	yes	5
	15	15	yes	yes	4
4	11	8	no	no?	3
	22	16	no	yes	4
1	27	16	yes	yes	5
	12	12	no	no	1
5				no	1
1	19	12	no	yes	4
2	25	30	yes	yes	4
3				no	1

Evaluation for Hardy Fern Foundation 1999

1					1
	8	4	no	yes	4
	12	9	no	yes	3
	10	8	no	yes	2
	24	18	yes	yes	4
	17	17	yes	yes	3
	12	10	no	yes	3
	16	14	no	yes	3
	14	15	yes	yes	3
	16	12	no	yes	3
3					1
3	4	4	no	no	1
	18	12	no	yes	3
1	14	12	no	yes	2
	16	12	yes	yes	2
	4	3	no	no	1
1	10	8	no	no	2

ALL Ferns shipped **New York Botanical Gardens**

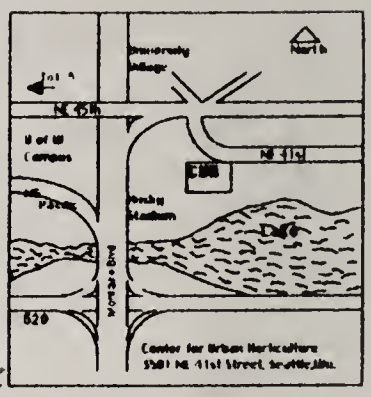
Fern Name	Accession Number	Number Alive
Adiantum venustum	913/98	1
Athyrium otophorum		
Blechum penna marina	911/98	3
Cyrtomium macrophyllum	912/98	4
Dryopteris affinis 'Crispa'	1209/97	5
Dryopteris affinis 'Azorica'	914/98	3
Dryopteris arguta		
Dryopteris bissetiana	1321/97	
Dryopteris blanfordii	905/98	5
Dryopteris championii	906/98	1
Dryopteris crassirhizoma	1207/97	5
Dryopteris crispifolia	908/98	3
Dryopteris dilatata 'Jimmy Dyce'	1317/97	
Dryopteris f-M 'Undulata Robusta'	1318/97	
Dryopteris lacera 'type'	915/98	5
Dryopteris lepidopoda	907/98	5
Dryopteris oreades 'Crispa'		
Dryopteris sieboldii	1208/97	3
Dryopteris stewartii	904/98	3
Dryopteris sublacera	1206/97	5
Osmunda regalis 'Purpurescens'		
Osmunda regalis 'Undulata'		
Polypodium interjectum	910/98	5
Polystichum mayebarae	1205/97	
Polystichum munitum		
Polystichum neolobatum	908/98	3
Polystichum rigens		

Evaluation for Hardy Fern Foundation 1999

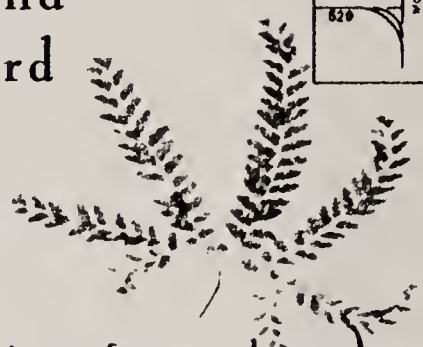
Number Dead	Overall Size in.	Length of new growth	Spore past yr.	Commercial Value	Garden Worthiness rate 1 to 5
	6		yes	yes	4
ALL					
	2		no	yes	4
1	4		no	yes	4
	7		no	yes	3
2	5		no		
all					
all					
	5		no	yes	3
2	4		no	no	
	10		yes	yes	5
	6		no	yes	5
all					
all					
	6		yes	yes	3
	7		no	yes	3
all					
			no	yes	4
2	6		no	yes	4
	12		yes	yes	3
all					
all					
	3		no		
2					
	1		no	no	
all					

Fern Festival 2000

Center for Urban Horticulture
3501 NE 41st St. - Seattle



June 2nd
June 3rd



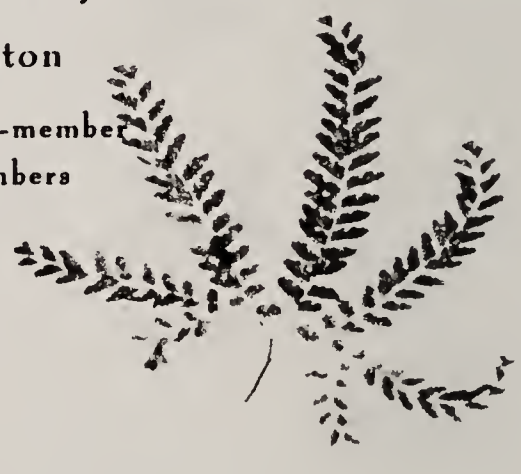
FRI. June 2nd

Plant Sale	1:00 - 4:00
Coffee	7pm (Plant sale prior to & post to lecture)
Lecture	7:30pm

Native Ferns and Their Natural Haunts

By: Dr. Art Kruckeberg,
Professor Emeritus, Botany
University of Washington

$7.00 non-member
$5.00 members



SAT. June 3rd

Plant Sale 10:00 - 2:00

For Sale:

Hardy & Exotic Ferns,
Companion plants,
Extensive collection of Hostas,
Other shade loving plants
Experts on hand to help

Hardy Fern Foundation
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e-mail
hffmembership@juno.com
http://www.hardyferns.org